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IRRATIONAL BELIEFS AND EXTERNAL CONTROL

by



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A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
OF MASTER OF EDUCATION

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

EDMONTON, ALBERTA

FALL, 1969

Thesis
254/10
197

THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES

The undersigned certify that they have read and recommend to the Faculty of Graduate Studies for acceptance a thesis entitled "Irrational Beliefs and External Control", submitted by Donna Jean McPhail in partial fulfillment of the requirements for the degree of Master of Education.



ABSTRACT

This study was based on a comparison of two theories which specify the role of beliefs as determinants of behavior. Rotter's theory (1966) on belief in external control was compared with Ellis' theory on irrational beliefs. Examination of Rotter's description of belief in external control, as a generalized expectancy about the nature of reinforcements and the nature of the world, led to the major hypothesis that this belief would be related to irrational thinking, as defined by Ellis. Subsidiary hypotheses predicted relationship of belief in external control with each of Ellis' Irrational Ideas.

The sample consisted of 117 students in grade eleven summer school classes in the Edmonton Public School District. Measures of irrationality and belief in external control were obtained from subjects' responses to the Irrational Ideas Inventory, designed by Zingle (1965), and Rotter's I-E Scale (1966).

Contrary to the major hypothesis, results showed no significant relation between scores on the I-E Scale and total test scores on the I-I Inventory. Only two of Ellis' eleven Irrational Ideas were found to be significantly related to belief in external control. A deductive and statistical re-examination of Rotter's I-E Scale questioned the validity and unidimensionality of this instrument, as well as its theoretical base.

ACKNOWLEDGEMENTS

The writer wishes to acknowledge the encouragement and assistance provided by Dr. H. W. Zingle, Dr. J. E. Bicknell, and Prof. J. E. Gallagher. Appreciation is also extended to the students, teachers, and administrators of the Edmonton Public School Board.

"He bears the seed of ruin in himself."

Matthew Arnold: Merope

"The universe is transformation; our life is what our thoughts make it."

Marcus Aurelius Antonius: Meditations, IV

"Men at some time are masters of their fates;
The fault, dear Brutus, is not in our stars,
But in ourselves, that we are underlings."

William Shakespeare: Julius Caesar, I, ii

"I am always with myself, and it is I who am my tormentor."

Leo Tolstoy: Memoirs of a Madman

"What's a man's first duty?
The answer's brief: To be himself."

Henrik Ibsen: Peer Gynt, IV, i

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CHAPTER I

INTRODUCTION

"Alienation", "powerlessness", "passivity", "dependence", "fatalism", "anxiety", and "hostility" are terms increasingly used in literature and mass media, as well as by sociologists and psychologists, in an attempt to explain the feelings and behavior of unhappy, troubled, or disturbed members of our society.

Do all these terms describe the same mental state? Are all these feelings or attitudes interrelated? Is there a common factor, a common psychological construct underlying these concepts? Do these concepts represent the negative counterpart of the "autonomous", "self-actualizing", "competent" individual who explores and attempts to master his environment?

This study did not attempt to answer all these questions. It did, however, consider the question of interrelationship of some of these concepts, particularly as they concern man's perception of his relationship to society. A review of related literature revealed theories illustrative of sociological and psychological interest in man's beliefs.

Concerns about man's perception of self and society, his feelings and attitude towards society, and his beliefs about life and the nature of man have been embraced in many theories on alienation. Examples of such theories, illustrating the often all-inclusive nature of the concept of alienation, have been briefly reviewed in this chapter. Other

approaches that attempt to be more specific in examination of these same concerns have resulted in the adoption of terms such as life orientation and belief systems. Two theories which explicate these concepts have been surveyed and related to the constructs identified in the review of alienation.

In an even more explicit manner, two recent theories have specified beliefs that affect individual behavior. Rotter (1966) postulated individual differences in belief about the nature of control of reinforcements. He proposed that belief in external control of reinforcements is related to behavior significantly different from behavior accompanying belief in internal control of reinforcements. Ellis (1962) identified eleven ubiquitous irrational beliefs as determinants of behavior. The perspective of this study was focussed on the feasibility of relating belief in external control of reinforcements, as defined by Rotter (1966), with irrational beliefs, as defined by Ellis (1962). Empirical information on this postulated relationship has been provided.

Related Literature and Research

The term alienation, or some variant of it, has found wide usage since its inception by historians and political philosophers. Hegel (discussed in Sabine, 1961) first suggested this term as descriptive of what happens to socialized man - he becomes detached from the world of nature, including his own nature. Marx (discussed in Fromm, 1955) expanded and popularized the idea of alienation, emphasizing industrialization as an alienating factor. Marx noted a conflict between the interest of the individual and the common interests of all individuals.

Alienation was then used as a generalized term describing the feelings of the individual in a society seen as non-caring, and was subsequently employed by social scientists studying group differences. More recently, it has been considered by psychologists as a dimension for understanding individual differences.

No simple definition of alienation has resulted from the contributions of theorists, whether of philosophical, political, sociological, or psychological orientation. Horney (1949), Fromm (1955), Srole (1956), Nettler (1957), and Seeman (1959) are among many who have endeavoured to describe, define, and measure the attitude or individual characteristic called "alienation".

Attempts to define and measure alienation by unidimensional techniques have been criticized as unsatisfactory. For example, Srole (1956) developed a measure along a continuum with "self-to-other belongingness" at one pole and "self-to-other distance", or alienation, at the other pole. While he was supported on the issue of the unidimensionality of the measured variable by some investigators (James, 1963; Neal and Rettig, 1963; Streuning and Richardson, 1965; Miller and Butler, 1966), the content of the variable was questioned by others. Srole's scale has been regarded as a measure of cynicism, pessimism, despair, and distrust bordering on suspicion (Middleton, 1963; Nettler, 1957; Meier and Bell, 1959; Streuning and Richardson, 1965). Davol and Reimanis (1959) interpreted Srole's alienated individual as one who lacks social interest and who perceives a need to protect (and strive only for) the self in view of a society seen as disorganized, lacking stability, and composed of undependable, uncaring individuals.

Exemplified here is the paradox of social-psychological interpretation of a concept such as alienation. Srole attempted to make explicit that which he considered as a bipolar concept, and thus precipitated the examination by other investigators of the more comprehensive and complex nature of the idea.

Seeman (1959, 1962, 1963, 1966, 1967) initially conceptualized alienation as a composite of several factors. In his early writings, Seeman attempted to identify five dimensions of alienation: powerlessness, meaninglessness, isolation, self-estrangement, and normlessness. Subsequently, Seeman emphasized the powerlessness aspect of alienation - that is, belief in little personal control over external events. This conception of alienation contributed significantly to the evolution of Rotter's theory on individual differences in belief and expectancy for external control.

In addition to attempts to define and measure alienation, such as those made by Srole and Seeman, descriptive approaches to alienation and related concepts have also been productive. Such descriptions have not, however, always satisfactorily isolated a psychological variable. For example, Davids (1955) viewed alienation as a disposition towards egocentricity, distrust, pessimism, anxiety, and resentment, exemplified by persons who are "lone wolves" with grievances, and who are apprehensive and gloomy in anticipating the future. From similar observations of alienated people Fromm (1964) developed his classification of people as necrophilic or biophilic.

Fromm theorized that there are two fundamental life orientations that determine the behavior of contemporary man. Necrophilic persons

are attracted to sickness and death, dwell in the past, hate and fear the future, approach life mechanically, and desire control, certainty, law and order in their lives and in the world. Persons with the opposite, or biophilic, orientation have a reverence for, and a functional approach to, life. They prefer to construct rather than to retain, confirm, or destroy. They love the adventure of living and try to influence by love, reason, and example, and not by force.

Fromm's necrophilic man appears to possess many of the characteristics subsumed by other writers under the idea of alienation. An investigation by Fox (1969) showed a positive relationship between necrophilia and dogmatism, authoritarianism, social acquiescence, and irrational beliefs. Interestingly, however, no significant relationship was found between creativity and biophilic orientation.

In summary:

1. Alienation has been variously interpreted as:
 - a) self-to-other distance
 - b) powerlessness, meaninglessness, isolation, normlessness, self-estrangement
 - c) attitudes of cynicism, pessimism, social apathy and acquiescence, egocentricity, and distrust of others
 - d) a belief in external control
 - e) related to feelings of anxiety, resentment, and apprehension about the future
2. Necrophilia has been described as:
 - a) a mechanistic and fearful orientation to life
 - b) a desire for law and order, for external control in society

- c) related to feelings of dread about the future, to attitudes of dogmatism and social acquiescence, and to irrational beliefs
3. Alienation and necrophilia may comprise overlapping sets of beliefs about the nature of man, self, and society. Both concepts imply a static state of being, hindering both the enjoyment and the process of living. The writer suggests that attempts to reduce these concepts to measurable psychological variables have provided neither succinct definition of the variables nor adequate explanation of the basis or derivation of these beliefs. Although it has been recognized that such beliefs and attitudes, with their accompanying emotions, cause distress and may interfere with the individual's ability to function satisfactorily, there is little suggestion about how such individuals may be helped to change this mental state. This omission may imply that such a state or orientation is unchangeable.

The foregoing attempt to summarize various positions on alienation and necrophilia illustrates the generality of these theories. Possibly of a more specific nature are theories on the role of beliefs, as illustrated by Rokeach's study of dogmatism. Interest in the relationship between belief systems and underlying personality structure was pursued by Rokeach (1960). His investigations resulted in the development of the Dogmatism Scale which distinguishes open (low dogmatic) belief systems from closed (high dogmatic) belief systems.

Rokeach identified the closed system of beliefs with the person who has feelings of isolation and helplessness in a world seen as threatening. This person tends to rely on external sources or authority to guide him, and is thus hindered in independently receiving, evaluating, or acting upon information with which he may be presented. He is more susceptible to externally imposed reinforcements.

By comparison, persons with open belief systems see the world as more friendly and are governed more by internal self-actualizing forces and less by irrational inner forces, according to Rokeach. The predominant presence of the cognitive need to know and the predominant absence of the need to ward off threat distinguish the relatively open-minded from the relatively closed-minded person. Thus, the open-minded individual is more responsive to, and more capable of evaluating, new information. He is more resistant to external reinforcements and has little need for overconcern with the remote past or future.

Similarities among Rokeach's closed-minded persons and the previously described alienated and necrophilic individuals are evident. However, in comparison with the other theorists, Rokeach made more explicit the distinguishing processes in perception, cognition, and behavior. Through research with his Dogmatism Scale, Rokeach found high dogmatism to be positively correlated with authoritarianism, anxiety, low ability to synthesize new material. He found no relationship with intelligence. Other positive correlates of high dogmatism which have been reported are low ego strength, low tolerance for changing conditions, submissive and conforming attitudes, tension, impatience, restraint, and conservatism (Vacchiano, Strauss, and Schiffman, 1968).

Summary

Selected references from the large volume of literature on man's perception of his relationship to society illustrate the significance which social psychologists have come to place on the role of beliefs as determinants of behavior. Investigation of beliefs about the nature of man, self, and society has led to increased awareness and understanding of not only behavioral differences, but also of individual differences in perception and learning. Inherent in this literature has been a concern for the mental health of the individual and, indeed, of society. Two theories which examined the relationship of specific beliefs and behavior provided the theoretical basis for the present study.

CHAPTER II

THEORETICAL ORIENTATION

I. BELIEF IN EXTERNAL CONTROL

In recognition of the role of reinforcements in learning theory, Rotter (1966) investigated individual differences in the perception of the degree of causality between behavior and subsequent reward or reinforcement.

When a reinforcement is perceived by the subject as following some action of his own but not entirely contingent upon his action, then, in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him (p. 1).

Rotter labelled this a belief in "external control". Conversely, he defined a belief in "internal control" as the perception of causal relationships between events (or rewards) and the individual's behavior or personality characteristics. This belief in external (or internal) control was considered by Rotter to be the reflection of a general belief about the nature of the world, a generalized expectancy or attitude varying with each individual. According to his belief about the degree of control he has over the consequences of his behavior, the person will categorize situations as chance or skill determined. This categorization then affects his choice of behavior. This theory thus suggests significance in understanding differences in learning processes, as well as other behavioral differences in people.

From this theoretical position, Rotter, in association with Liverant, Seeman, and Crowne, developed the I-E Scale for measuring,

along a continuum, individual differences in a generalized expectancy or belief in internal versus external control. The refined version of the scale was used in this study (see Appendix A). This is a forced-choice 29-item scale (including six filler items), which results in an external control score.

"The items deal exclusively with the subject's belief about the nature of the world. That is, they are concerned with the subject's expectations about how reinforcement is controlled (Rotter, 1966, p. 10)." Rotter noted that such a generalized expectancy may correlate with the value the subject places on internal control; however, the test items were not designed to measure a preference for internal or external control.

Concepts Related to Internal-External Control

Rotter notes that as early as 1899 Veblen related a belief in luck or chance to less productivity and a general belief in fate. Rotter's corresponding hypothesis was that a belief in external control of reinforcements is related to a general passivity. He found support for this idea in the work of Merton (1946), who considered the defensive nature of a belief in luck as an attempt to serve the psychological function of enabling people to preserve their self-esteem in the face of failure. Merton further suggested that this belief may also curtail sustained endeavour, or that, in other words, the belief in chance or luck may be related to passivity. Merton (1949) also noted the significance of such a belief in the study of asocial behavior.

In the development and investigation of his theory, Rotter collaborated with Seeman, who linked the "powerlessness" aspect of alienation to belief in external control as a psychological variable (Seeman, 1959). In various studies using the I-E Scale, Seeman is reported to have found that a belief in internal control is related to information-seeking behavior, environmental knowledge, active involvement in groups, and general political knowledge (reported in Rotter, 1966). The dimension of internal-external control was seen by Rotter to involve the attempts of people to better their life conditions, that is, to control the environment. In this way, Rotter related the dimension to White's concept of "competence" (White, 1959) and Angyal's notion of "autonomy" (Angyal, 1941).

Additional test findings reported by Rotter show belief in external control to have negligible to low correlations with intelligence, non-significant sex differences, and correlations of 0.00 to 0.24 between anxiety and external control. College-oriented high school students were found to be more internally controlled than non-college-oriented students. Internally controlled subjects were found to be more effective in changing the attitudes of others. Amongst high school students Franklin (1963) found significant evidence of the relationship of achievement motivation with internal control.

Investigations relating internal-external control to the variables of dependence, conformity, and suggestibility are also reported by Rotter (1966). Results show that according to their perception of possible (or potential) benefits, subjects with belief in internal control make choices about conforming or acquiescing to suggestion.

However, if such suggestions or attempts at manipulation were not perceived as beneficial, or were perceived as subtle attempts to influence him without his awareness, the internally controlled subject acted resistively.

Rotter summarized the internally controlled person as one likely to:

1. be more alert to those aspects of the environment which provide useful information for his future behavior
 2. take steps to improve his environmental conditions
 3. place greater value on skill or achievement reinforcements and be generally more concerned with his ability, particularly his failures
 4. be resistive to subtle attempts to influence him
- (Rotter, 1966, p. 25)

By his omission of discussion of the predictable behavior of the externally controlled individual, it may be inferred that Rotter would see his behavior as the converse of the internally controlled person.

Comment

Like other classifications and concepts previously reviewed in this study, Rotter's dimension of internal versus external control conveys suggestions about the kind of behavior that is desirable or necessary in our society. Alienated, necrophilic, dogmatic, dependent, passive, or externally controlled persons have much in common - feelings of impotence in controlling their own destiny, failure to derive satisfaction from their efforts, possibly an underlying fear or resentment of society, and mistrust of self and the nature of man.

Rotter suggested that persons at either extreme of the internal-external control continuum are likely to be maladjusted and unrealistic, but he implied more social and emotional difficulties for the externally

controlled. He attempted no recommendations for educators, psychologists, or social scientists concerning treatment of the externally controlled. Thus, while the I-E Scale was presented as a "useful" measure of individual and group differences, its application in helpful treatment of learning or behavioral difficulties was not pursued. Hence, the implied static nature of the dimension provokes some questions.

Another aspect shared by Rotter's theory and those on alienation, necrophilia, and dogmatism is the absence of attempt to explain the basis, or reason for the development, of the orientation, or, as in Rotter's case, the generalized belief about the nature of the world. While it is possible to assume that this belief is the result of conditioning, Rotter did not thus ascribe it. He intimated that the role of external fatalistic determination by parents is possibly significant in determining the expectancy for external control in the child. If these constructs are to be useful for more than the purposes of classification, further investigation of their antecedents may merit consideration.

II. RATIONAL-EMOTIVE PSYCHOTHERAPY

Ellis' (1962) theory of Rational-Emotive Psychotherapy is based on the assumption that human thinking and emotion are not separate or different, but, quite conversely, are overlapping and integrally inter-related processes. Ellis believed that much of what is called emotion is evaluative thinking. He proposed that human emotion is essentially an attitudinal and cognitive process, determined and sustained by a form of self-talk or internalized sentences. The rationality of the

internalized sentence determines whether the corresponding emotion will be negative (as anger, depression) or positive (as love, elation). According to Ellis, irrational ideas are responsible for negative emotion and disturbance. Thus, Ellis used the term "irrational ideas" to classify beliefs which are illogical, nonsensical, mistaken, and unrealistic.

Using these basic ideas and assumptions, Ellis has systematized his A-B-C Theory of Personality and Emotional Disturbance. This theory holds that it is rarely the stimulus, A, which gives rise to the human emotion, C. Rather, it is almost always B, the individual's beliefs regarding (or interpretation of) A, which actually leads to his reaction, C. The emphasis in Ellis' theory is on the evaluative phase, B, which is the product of the individual's system of beliefs. To this point, Ellis' theory resembles those of Fromm, Seeman, Rokeach, and Rotter, in that he recognizes both the role of beliefs as a determinant of behavior, and individual differences in beliefs. However, as Ellis' theory also considers the derivation, the maintenance, and the feasibility of changing beliefs, and specifies commonly held irrational ideas, it may be considered to be more comprehensive than those concerned only with differentiating human beliefs and related behavior.

According to Ellis, most of man's irrational ideas are learned through parents, peers, educators, and other contacts with society. They are sustained through ignorance, by reindoctrination and illogical thinking. It follows that man can be taught to re-think, challenge, and contradict these, so that his internalized thoughts become more logical and efficient. Thus Ellis hypothesized that man can learn to

control and change his thinking, thereby controlling or changing his emotions or behavior.

Ellis outlined eleven major illogical and irrational beliefs which he suggests are prevalent in Western civilization. These Irrational Ideas which seem to cause disturbance, together with their more rational replacements, follow:

1. The idea that it is a dire necessity for an adult human being to be loved or approved of by virtually every significant other person in his community.

Alternatively, one should concentrate on one's own self-respect, on winning approval for practical purposes (such as job achievement), and on loving rather than being loved.

2. The idea that one should be thoroughly competent, adequate, and achieving in all possible respects if one is to consider oneself worthwhile.

Alternatively, it is better to focus on doing rather than on doing well, to accept oneself as an imperfect creature, who has definite human limitations and fallibilities.

3. The idea that certain people are bad, wicked, or villainous and that they should be severely blamed and punished for their villainy.

Instead of becoming unduly upset over one's own or others' inappropriate or antisocial acts, if one is rational one should try to understand why people act the way they do, realizing that such acts are invariably committed out of stupidity, ignorance, or emotional disturbance.

4. The idea that it is awful and catastrophic when things are not the way one would very much like them to be.

Preferably, one should certainly try to change or control conditions so that they become more satisfactory, but if this is impossible, one had better become resigned to their existence and stop telling oneself how awful they are.

5. The idea that human unhappiness is externally caused and that people have little or no ability to control their sorrows and disturbances.

Alternatively, the rational individual recognizes that virtually all human unhappiness is caused or sustained by the view one takes of people and events rather than by people and events themselves.

6. The idea that if something is or may be dangerous or fearsome one should be terribly concerned about it and should keep dwelling on the possibility of its occurring.

More rationally, if something is or may be dangerous or injurious, one should face it and try to render it less dangerous or injurious. When that is impossible, one should focus on other things and stop telling oneself what a terrible situation one is or may be in. Worrying over a dire situation will rarely ward it off and will often prevent effective counteraction.

7. The idea that it is easier to avoid than to face certain life difficulties and self-responsibilities.

Instead, the rational philosophy recognizes that the so-called easy way is often much more difficult in the long run and that the only way to solve difficult problems is to face them squarely.

8. The idea that one should be dependent on others and needs someone stronger than oneself on whom to rely.

Alternatively, it is usually better to stand on one's own feet and learn by doing things independently, thereby increasing faith in self and ability to meet difficult circumstances of living.

9. The idea that one's past history is an all-important determiner of one's present behavior and that, because something once strongly affected one's life, it should indefinitely have a similar effect.

Instead, one should learn from past experiences, but should not be overly attached to or prejudiced by them.

10. The idea that one should become quite upset over other people's problems and disturbances.

A more rational idea recognizes that other people's deficiencies are largely their own problems and that putting pressure on them to change is usually not helpful.

11. The idea that there is invariably a right, precise, and perfect solution to human problems and that it is catastrophic if this perfect solution is not found.

Conversely, one should consider possible solutions and then choose the most practical and feasible, recognizing that to err is human and humans generally learn by trial and error.

Ellis (1962) pointed out that these eleven Irrational Ideas are only some of the irrational beliefs found in Western civilization. He further noted that individuals can have both irrational and rational beliefs. The eleven ideas cited as irrational concern perception of self and the relation of society and events to self.

According to Ellis, insight alone is not sufficient to enable the individual to overcome emotional disturbance. A rational philosophy of living must be constructed, in order for him to contend with other illogical ideas which he may encounter in the future. Ellis' theory of Rational-Emotive Psychotherapy offers a method whereby the client learns to replace his irrational ideas with a more logical and rational set of beliefs.

This study was not concerned, however, with the therapeutic method, but with the basic tenets of Ellis' theory, and the relationship, if any, between Ellis' eleven Irrational Ideas and the belief in external control as explicated by Rotter.

A logical comparison of each of Ellis' Irrational Ideas with a belief in external control was developed by the writer. In accordance with this comparison, relations between belief in external control and each of Ellis' Irrational Ideas were predicted.

Research Related to Ellis' Irrational Ideas

Zinbale (1965) developed an instrument to measure the extent to which individuals possess illogical or Irrational Ideas. This instrument consists of statements of beliefs based on Ellis' eleven Irrational Ideas. "Irrationality" as measured by Zinbale's instrument, the Irrational Ideas Inventory (I-I Inventory), was subsequently found to be positively related to underachievement (Zinbale, 1965). Investigation by Conklin (1965), using a shortened version of the I-I Inventory, supported Zinbale's findings.

Other studies using the I-I Inventory have positively related irrationality to anxiety (Taft, 1968) and to necrophilia (Fox, 1969), while an abridged form of the I-I Inventory positively related irrational thinking to behavioral problems in school (Hoxter, 1967) and positively related reduction in irrationality with improvement in self-concept (Sanche, 1968).

This study used a shortened version of the I-I Inventory, as refined by Allen, (1969)*. Allen's revised form consisted of 65 of the original 122 items, scored on a Likert-type scale, producing a total score of "irrationality", as well as subtest scores on each of the eleven Irrational Ideas (see Appendix A).

Comparison of the Ellis and the Rotter Theories

A basic assumption in both Ellis' and Rotter's theories is the significance of a person's beliefs about the self and others as determinants of behavior. Ellis specified several commonly held beliefs and considered behavioral and emotional manifestations of these, whereas Rotter dealt with a more generalized belief about the nature of the world and predicted concomitant behavior. Rotter did not attempt to predict emotional counterparts of this belief or behavior.

As Rotter was more specific in describing the model of the internally controlled, it may be helpful to compare this with Ellis' rational man. It can be only inferred that Rotter's externally controlled person is the converse of his described internally controlled person. The theoretical model of a person with a belief in internal control reveals an individual who perceives causal relationships between events (or rewards) and his own behavior or personality characteristics. He believes that he can control his own destiny, or what happens to him, through information-seeking behavior, use of this information and his abilities, and active involvement in his environment and society.

*Allen, S., M.Ed. Candidate, University of Alberta, Research on I-I Inventory.

He prefers to be independent of others and resists attempts to influence him. He has a strong belief in self and his ability, and believes that his efforts will be rewarded.

Theoretically, this person with a belief in internal control would have much more in common with Ellis' rational man than with one who believes in many of Ellis' Irrational Ideas. As Rotter points out, the external-internal control dimension is a generalized belief about the nature of the world; it may, therefore, be predicted that a generalized belief in internal control should be positively related to rational thinking as defined by Ellis.

The person with a belief in external control who does not relate his own behavior to what happens to him, who believes he is powerless in the hands of fate, chance, or powerful others would have what Ellis refers to as an irrational philosophy of life. It is logically predictable, therefore, that he may hold many of Ellis' Irrational Ideas and that his generalized expectancy or belief about the nature of the world would be related to a generally irrational philosophy of life.

In order to place in perspective the relationship between Irrational Ideas and belief in external control, each of Ellis' Irrational Ideas has been compared and interpreted in terms of belief in external control. Each Irrational Idea is followed by a synopsis of Ellis' elaboration of the implications of that idea. Where Rotter has specifically provided referential discussion or data, these will be noted; otherwise, the interpretation labelled Rotter is the writer's. A prediction of the kind of relationship in each case follows.

Irrational Idea No. 1: That it is a dire necessity to be loved and approved by all significant persons.

Ellis: This belief sets a perfectionistic, unattainable goal, failure of which to achieve produces anxiety and increasing insecurity. It requires subordination of other desires, interests, and goals in order to conform to the perception of others' wishes. Behavior then becomes less self-directed, less self-expressive, more inhibited, and more concerned with gaining than giving love.

Rotter: According to Rotter's theory, the internally controlled person resists attempts to influence him and focusses on his own abilities. On this basis, internality may correlate with rational thinking. Rotter, however, reports negative correlations between belief in external control and need for approval.

In the writer's opinion, conformity without regard for own desires, being influenced by others, and repression of interests and goals can be logically categorized as behavior controlled by other people, and a manifestation of the belief in (or acceptance of) external control. This Irrational Idea also implies a lack of belief in self, and denial of self and ability for internal control.

Relation: Despite Rotter's reported findings of negative correlation between externality and need for approval, a positive relation is predicted between externality and agreement with Irrational Idea No. 1. Based on Rotter's model of the internally controlled person and the implications which follow from Ellis' Irrational Idea No. 1, it seems logical to predict a positive relation between belief in external control and this Irrational Idea.

Irrational Idea No. 2: That one should be thoroughly competent, adequate, and achieving in all possible respects if one is to consider oneself worthwhile.

Ellis: This belief sets a perfectionistic goal, usually impossible to attain, and is accompanied by a compulsive drive for achievement which produces stress, hypertension, etcetera.

It implies a measurement of one's worth in terms of achievement, which is often a comparison with others. It denies the intrinsic value of self, and results in fears of worthlessness, failure, risk-taking, and making mistakes. Thus, learning from risk-taking and mistakes is inhibited, which may in turn decrease achievement.

Rotter: Potter considers the possibility that both high externals and high internals may hold high achievement motivation, but reports that achieve-

ment motivation is generally associated with a belief in internal control. He notes, however, the inconsistency of such findings.

It may be ironically argued that this Irrational Idea reflects a strong belief in one's ability and internal control. As such, agreement with this Irrational Idea may be positively related to a belief in internal control. However, the implied denial of the intrinsic value of self, and the use of external criteria as a measure of self-worth, may suggest a lack of belief in self and a belief in external control.

Relation: Based on the findings reported by Rotter and the position that this Irrational Idea reflects the self-determinism of the internals, a negative correlation is predicted between belief in external control and this Irrational Idea.

Irrational Idea No. 3: That some people are bad, wicked, or villainous, and should be blamed and punished for it.

Ellis: This idea is based on belief in absolute standards of "right" and "wrong" and the supposition that blame and punishment will stop "wrongdoing". It leads to anxiety, guilt, depression, and hostility. It frequently, then, impedes human learning and may even increase antisocial behavior.

Rotter: Basic to Rotter's theory is the external's acceptance of, and belief in, "powerful others" as controllers of reinforcements. Related to this is a passive acceptance of the judgement and power of others. A belief in external control could then be positively related to acceptance of this Irrational Idea. However, Rotter's theory also postulates that a belief in external control subsumes a lack of belief in causal relations between reinforcements and behavior or personality, and thus may not be positively correlated with acceptance of this Irrational Idea.

Relation: Considering the possibility that this Irrational Idea could be accepted or rejected by externals, no relation is predicted between belief in external control and agreement with this Irrational Idea.

Irrational Idea No. 4: That it is awful and catastrophic when things are not the way one would very much like them to be.

Ellis: This Irrational Idea suggests that external conditions and situations have a strong affect on one, and as such, should be the way the individual prefers them. It suggests that those situations which are disliked cannot be tolerated and should be changed.

This non-acceptance of reality frequently causes frustration, hostility, and aggression,

which are not usually helpful in changing the undesirable conditions.

Rotter: The possibility exists of both externals and internals agreeing with this Irrational Idea. The feeling of being at the mercy of forces which cannot be understood or controlled may be related to the externals' agreement with this idea. The irrational component, that one cannot control how one feels about "intolerable" situations, would also seem to be related to a lack of belief in self - that is, a belief in external control.

However, it may also be logically argued that agreement with this Irrational Idea is related to a belief in internal control. The internals, theoretically, hold a strong belief in the power of the individual to control what happens. They reject a passive acceptance of, and try to improve and master, environmental conditions which may be undesirable. This self-determinism of the high internals may then be related to irrational thinking.

Relation: Based on the above discussion, it is tentatively concluded that acceptance of this Irrational Idea may not distinguish externals from internals. No relation is then predicted between belief in external control and agreement with this Irrational Idea.

Irrational Idea No. 5: That human unhappiness is externally caused and that people have little or no ability to control their sorrows and disturbances.

Ellis: This belief places responsibility for human emotions on external events or other people, and fails to recognize that emotions are the result of one's own perceptions, thoughts, and internalized sentences, which are not unchangeable.

Rotter: With reference to Rotter's theory, it is noted that externals do not perceive causal relations between their own behavior and what happens to them (which may include their emotions). It seems reasonable to predict that those with a belief in external control would accept this irrational belief in external cause of human unhappiness, and would deny the ability of self to change these feelings.

Relation: A logical prediction is that of a positive relation between belief in external control and this Irrational Idea.

Irrational Idea No. 6: That if something is or may be dangerous or fearsome one should be terribly concerned about it and should keep dwelling on the possibility of its occurring.

Ellis: This intense fear of what may happen to one causes anxiety which may prevent objective observation of the reality of the situation, and may also increase the danger or probability of its happening.

Rotter: The passive acceptance of the externals and their reported lack of anxiety would indicate the possibility of no strongly positive relationship between belief in external control and this Irrational Idea. However, it is predicted that those with a belief in self and internal control would not likely agree with this Irrational Idea. Their self-determinism would logically be a denial of this idea and predictably should correlate with the rational counterpart of it. On this basis, this idea is more likely to be accepted by the externals than the internals.

Relation: On the basis of consideration that internals would likely reject this idea, a positive correlation is possible between belief in external control and agreement with this Irrational Idea. However, the passivity of the externals leads the writer to predict a limitation on the magnitude of this positive correlation.

Irrational Idea No. 7: That it is easier to avoid than to face certain life difficulties and self-responsibilities.

Ellis: Agreement with this idea is often accompanied by anxiety, decreasing self-confidence, self-torture, and guilt. It denies the learning value of experience and precludes long range life goals and values.

Rotter: Basic in Rotter's theory is the internal's perception of causal relation between reinforcements and behavior. It may be inferred that this characteristic would imply self-responsibility. It follows that the internal's belief in self and value on self-responsibility would be related to rejection of this Irrational Idea.

Relation: From an interpretation of Rotter's theory, the writer postulates that internals will reject this Irrational Idea. Conversely, it is predicted that externals will agree with this Irrational Idea.

Irrational Idea No. 8: That one should be dependent on others and needs someone stronger than oneself on whom to rely.

Ellis: This dependence on others is frequently accompanied by subordination of one's own wishes and interests, loss of self-confidence, and increasing feelings of worthlessness, anxiety, and self-blame. It denies the learning value from experience of making one's own decisions and mistakes. It puts one at the mercy of others and of outside forces one cannot control.

Rotter: Rotter presents evidence of the resistance of internals to outside manipulation and influence, and implies that externals are more dependent and conforming. Thus, it is predicted that those with a belief in external control also hold this

irrational belief. Conversely, internals are likely to reject it in favor of relying on self, even if unrealistically.

Relation: Based on Potter's reports of negative relation between belief in internal control and dependency and conformity, a positive relation is predicted between belief in external control and this Irrational Idea.

Irrational Idea No. 2: That one's past history is an all important determiner of one's present behavior and that because something once strongly affected one's life, it should indefinitely have a similar effect.

Ellis: Feelings of defeat and worthlessness may often accompany this idea. It may also inhibit the seeking of new information and solutions to problems, as it denies the self and one's ability to learn from the past with its appropriate relationship to the present and future.

Potter: The tendency for internals to learn from experience, to rely on their skill to control their destiny, and their information-seeking behavior indicates a relationship between internals and rejection of this idea.

However, the externals' lack of perception of causal relationships between behavior and reinforcement may preclude consideration of the past as a determiner of present behavior. Thus, they

also may reject this idea.

Relation: It has been argued that both high internals and high externals may reject this Irrational Idea. It is, therefore, predicted that agreement with this Irrational Idea bears no relation to belief in external control.

Irrational Idea No. 10: That one should become quite upset over other people's problems and disturbances.

Ellis: This idea may imply non-acceptance of reality, and exaggerate the power one has over others' behavior. It denies more helpful ways to treat others, for example, through love and objectivity. It may also contain a component of self-denial as a result of the emphasis on others' problems.

Rotter: According to Rotter, those with a belief in external control are characterized by a passive acceptance of chance or fate as the cause of misfortune. In addition, they have feelings of powerlessness; a mistrust of the nature of man is implied. Based on these factors, externals may have little concern for the problems and disturbances of other people. A prediction of negative correlation between belief in external control and this Irrational Idea is, therefore, possible. However, an additional implication of this Irrational Idea merits consideration: if other

people's behavior affects or controls one's feelings, a belief in external control may be indicated.

Consideration of Rotter's model of the internally controlled does not clarify the relation with this Irrational Idea. The internal's belief in self and ability may lead him to believe he can help or change others' behavior. However, this does not necessitate becoming upset over the reality of others' problems.

Relation: Distress over others' problems may not distinguish externals from internals. Thus, no relation is predicted between belief in external control and this Irrational Idea.

Irrational Idea No. II: That there is invariably a right, precise, and perfect solution to human problems and that it is catastrophic if this perfect solution is not found.

Ellis: A perfectionistic, unattainable goal is evident in this idea. It denies the role of probability and chance and raises false expectations and anxiety. It often inhibits problem-solving behavior and learning from experimentation.

Rotter: An interpretation of Rotter's theory may imply that the self-determinism of the Internals would likely be related to acceptance of this Idea. Their emphasis on skill, as opposed to risk-taking, may support this postulation.

However, it may be argued that those who believe in external control, especially the control of powerful others, will also accept this idea. Externals who believe in chance may be hopeful of finding the right, perfect solution through gambling, rather than compromising on finding a less perfect solution through experimentation and use of their skills.

Relation: It may be inferred from Rotter's theory that both high internals and high externals could agree with this Irrational Idea. Therefore, no relation is predicted between response to this idea and belief in external control.

From the foregoing attempt to analyze and predict relationships between each of Ellis' Irrational Ideas and the belief in external versus internal control, it is evident that no simple relation exists between irrationality and externality. However, at least five of the Irrational Ideas may be positively related to a belief in external control. Only one Irrational Idea is interpreted to be negatively related to belief in external control. That which Ellis calls an irrational philosophy of life seems to include more of the beliefs of the externally controlled than of the internally controlled person. The purpose of this study was to investigate the relation between belief in external control and the extent of possession of irrational beliefs. In addition, this study examined the relation between belief in external control and each of Ellis' eleven Irrational Ideas.

III. OPERATIONAL DEFINITIONS

1. Irrational Ideas (or beliefs) are illogical Ideas or notions, as cited by Ellis and measured on the revised form of the I-I Inventory.
2. Belief in external control is the generalized belief or expectancy about the control of reinforcements (or rewards) by external forces, as defined by Rotter and measured on the I-E Scale.
3. Belief in internal control is the generalized belief or expectancy about the causal nature of the relationship of reinforcements (or rewards) to behavior or personality, as defined by Rotter and measured on the I-E Scale.
4. Externals are those subjects who score high on the I-E Scale and have a strong belief in external control, according to Rotter.
5. Internals are those subjects who score low on the I-E Scale and who have a strong belief in Internal control, according to Rotter.

IV. RESEARCH HYPOTHESES

The previous consideration of theory and research suggested the following hypotheses:

Major Hypothesis

Belief in external control as measured on the I-E Scale is positively correlated with possession of irrational beliefs as measured on

the I-I Inventory.

The major hypothesis was based on the view that the person with a belief in external control who does not relate his own behavior to what happens to him, who believes he is powerless in the hands of fate, chance, or powerful others would seem to have what Ellis refers to as an irrational philosophy of life. Interpretation of each of Ellis' Irrational Ideas in terms of Rotter's theory revealed inconsistencies in the kind of relation predicted between belief in external control and each of Ellis' ideas. Therefore, subsidiary hypotheses were formulated in each case.

Subsidiary Hypotheses

1. Belief in external control as measured on the I-E Scale is positively correlated with belief in Irrational Idea No. 1 as measured on the I-I Inventory.
2. Belief in external control as measured on the I-E Scale is negatively correlated with belief in Irrational Idea No. 2 as measured on the I-I Inventory.
3. Belief in external control as measured on the I-E Scale is not related to belief in Irrational Idea No. 3 as measured on the I-I Inventory.
4. Belief in external control as measured on the I-E Scale is not related to belief in Irrational Idea No. 4 as measured on the I-I Inventory.
5. Belief in external control as measured on the I-E Scale is positively correlated with belief in Irrational Idea No. 5

as measured on the I-I Inventory.

6. Belief in external control as measured on the I-E Scale is positively correlated with belief in Irrational Idea No. 6 as measured on the I-I Inventory.
7. Belief in external control as measured on the I-E Scale is positively correlated with belief in Irrational Idea No. 7 as measured on the I-I Inventory.
8. Belief in external control as measured on the I-E Scale is positively correlated with belief in Irrational Idea No. 8 as measured on the I-I Inventory.
9. Belief in external control as measured on the I-E Scale is not related to belief in Irrational Idea No. 9 as measured on the I-I Inventory.
10. Belief in external control as measured on the I-E Scale is not related to belief in Irrational Idea No. 10 as measured on the I-I Inventory.
11. Belief in external control as measured on the I-E Scale is not related to belief in Irrational Idea No. 11 as measured on the I-I Inventory.

CHAPTER III

DESIGN AND PROCEDURE

The Sample

Subjects were chosen from students attending summer school classes in the Edmonton Public School District. These students represented a wide range of scholastic ability and socio-economic status. Reasons for summer school attendance are varied. For example, some wish to improve scholastic standing by repeating a subject. Students also may take new subjects in order to decrease the number of years spent in high school or to test their ability in a new field. Some students attend summer school classes primarily for reasons of enhancing their educational experiences; others for more practical or economic reasons, such as gaining entrance requirements to other educational institutions or to careers.

The sample comprised 117 students, including 46 boys and 71 girls, in classes of Biology 20, Chemistry 20, French 20, Mathematics 20, and Physics 20. Ages ranged from 15 to 19 years, inclusive. The majority (71) of these students were taking the course for the first time.

Administration of the tests used in this study was conducted by the writer in groups of 30 to 50 students.

Distribution of scores on the I-I Inventory ranged from 128 to 243, compared to a possible range of 65 to 325. The mean score for this sample was 188.37, with a standard deviation of 24.15. In revising the

original form of the I-I Inventory, Allen* (1969) analyzed the responses on the I-I Inventory from a sample of approximately 900 students in grades seven through twelve. For the 65 items selected in the revised form of the I-I Inventory used in this study, he found a mean score of 201.42 and a standard deviation of 22.28. The following table shows a comparison of Allen's norms with data on the sample used in this study, together with the corresponding t-ratios.

TABLE I

I-I INVENTORY SURTESTS AND TOTAL SCORES

	Number of items	Mean		Standard Deviation		t**
		This study	Allen norms	This study	Allen norms	
I-I No. 1	7	20.46	22.45	5.57	5.23	3.20
I-I No. 2	5	17.45	18.00	3.21	3.49	1.49 n.s.
I-I No. 3	6	15.62	17.34	4.56	4.58	3.49
I-I No. 4	5	15.31	16.07	3.82	3.95	1.77 n.s.
I-I No. 5	6	16.68	19.09	4.56	4.69	4.70
I-I No. 6	8	22.09	24.92	6.05	5.95	4.21
I-I No. 7	7	18.62	19.66	5.12	5.83	1.77 n.s.
I-I No. 8	6	17.64	17.64	3.63	4.09	0.00 n.s.
I-I No. 9	5	14.85	15.39	3.04	3.51	1.58 n.s.
I-I No. 10	5	15.57	16.66	3.69	4.16	2.38
I-I No. 11	5	14.08	14.20	3.82	3.47	0.29 n.s.
Total I-I	65	188.37	201.42	24.15	22.28	4.33

*Allen, S., M.Ed. Candidate, University of Alberta, Research on the I-I Inventory.

**t-ratio required for 0.05 level of confidence is 1.960

t-ratio required for 0.01 level of confidence is 2.576

t-ratio required for 0.001 level of confidence is 3.291

Table I shows the results of t-tests of the significance of the differences between the I-I means of this study and Allen's means. Five of the I-I Inventory subtests provide t-ratios beyond the 0.05 level of confidence. In addition, t-test of the total I-I means shows that the sample in this study comes from a population different from that from which Allen's group was drawn. It will be noted that, for the sample studied by the writer, all differences occur in the direction of less irrationality, as compared to Allen's results.

Without further investigation, any attempt to explain the differences in I-I means of this study, as compared to Allen's data, would be little more than speculation. One obvious difference in sample composition is the range of grade level tested by Allen. His sample comprised students from grades seven through twelve, whereas the writer's sample was composed of only grade eleven or grade twelve students.

With reference to Allen's data, the significant differences in means of the I-I Inventory, as revealed by t-tests, may be considered a limitation of this study. The perspective of this study was, however, concentrated on investigating the relation of belief in external control with belief in Ellis' Irrational Ideas. More specifically, this study attempted to answer the question: is irrationality, as measured on the I-I Inventory, predictive of belief in external control, as measured on the I-E Scale? Therefore, while recognizing that the sample differed with Allen's data on response to the I-I Inventory, investigation proceeded on the assumption that this difference did not preclude comparison of irrationality with externality of this sample.

Analysis of scores on the I-E Scale revealed a range of 1 to 22, compared to a possible 0 to 23 range. The mean and standard deviation for the sample were 10.74 and 3.83, respectively. Rotter does not report findings for a sample comparable to that used here, but groups of college applicants, high school students, and 18 year old subjects are identified. For these groups, Rotter reports means ranging from 7.96 to 10.00, with standard deviations of 3.80 to 4.20.

Tests

Two measures of beliefs were used to test the hypotheses of this study. As has already been indicated, the revised 65-item form of the Irrational Ideas Inventory (I-I Inventory) was used to investigate the degree of irrationality in subjects' beliefs. A high score indicates that the subject possesses a greater degree of irrationality than do subjects with low scores. The test also yields sub-scores reflecting intensity of belief in each of Ellis' eleven Irrational Ideas.

In its original form, as developed by Zinbale (1965), the test contained 122 items. Test-retest reliability of 0.80 and content validity (via the interjudge method) of 0.75 to 0.85 were reported by Zinbale. The revised form used in this study contains 65 of the original items, with content unchanged (Appendix A). Test-retest reliability for this form was found to be 0.71, over a period of seven days. This testing was administered by the writer to a sample of 56 students in grade eleven English classes at Victoria Composite High School, Edmonton.

A measure of belief in external control was obtained by use of the I-E Scale, (Appendix A), developed by Rotter (1966). High scores

suggest a strong belief in external control, as defined by Rotter; low scores indicate a strong belief in internal control. Test-retest reliability reported by Rotter ranges from 0.60 to 0.83. However, one re-test over a two-month period gave a reliability coefficient of 0.49. Internal consistency estimates were reported to vary from 0.65 to 0.72. Rotter defends the content validity of the I-E Scale items by stating that, "The items deal exclusively with the subjects' belief about the nature of the world . . . , about how reinforcement is controlled (1966, p. 10)." He provides no other information in support of the validity of this instrument.

Subjects responded to the I-I Inventory and I-E Scale on machine-scored answer sheets, from which their responses were transferred to I.B.M. punch cards for compilation and analysis of the data.

CHAPTER IV

ANALYSIS OF DATA AND FINDINGS

The data accumulated from subjects' responses to the I-I Inventory and the I-E Scale were subjected to three statistical analyses: intercorrelation, multiple linear step-wise regression, and analysis of variance.

Major Hypothesis

The major hypothesis of this study predicted a positive correlation between belief in external control and possession of irrational beliefs. Comparison of scores on the I-E Scale with total score on the I-I Inventory yielded a correlation coefficient of 0.15. While this correlation was in the predicted direction, it was not significant at the 0.05 level. Thus, confirmation of the major hypothesis was not obtained.

Relevant to the major hypothesis, the writer investigated the contribution of I-I subtests to the variance in I-E scores. Multiple linear step-wise regression analyses and analysis of variance were performed. Scores on subtests 1 to 11 of the I-I Inventory were designated as predictor variables, with score on the I-E Scale designated as the criterion variable. The first three steps of the regression analysis showed that Irrational Idea No. 7 and Irrational Idea No. 4 contributed significantly to the prediction of the I-E Scale score. Table II shows the results of the first three steps of the multiple linear step-wise regression analysis and the analyses of variance.

TABLE II

MULTIPLE LINEAR STEP-WISE REGRESSION ANALYSIS

Multiple Regression Step No. 1
 Variable entering: Irrational Idea No. 7
 F value for variable entering: 9.793826
 Probability level: 0.002220
 Percent variance accounted for: 7.848012
 Standard error of predicted Y: 3.691196

Analysis of Variance

Source of variation	df.	Sum of squares	Mean square	F-ratio	P
Regression	1	133.441	133.441	9.794	0.002220
Residual	115	1566.868	13.625		
Total	116	1700.309			

Multiple Regression Step No. 2
 Variable entering: Irrational Idea No. 2
 F value for variable entering: 3.106465
 Probability level: 0.080610
 Percent variance accounted for: 10.292512
 Standard error of predicted Y: 3.657848

Analysis of Variance

Source of variation	df.	Sum of squares	Mean square	F-ratio	P
Regression	2	175.005	87.502	6.540	0.002048
Residual	114	1525.304	13.380		
Total	116	1700.309			

TABLE II (continued)

Multiple Regression Step No. 3	
Variable entering:	Irrational Idea No. 4
F value for variable entering:	3.999164
Probability level:	0.047905
Percent variance accounted for:	13.358819
Standard error of predicted Y:	3.610662

Analysis of Variance

Source of variation	df.	Sum of squares	Mean square	F-ratio	P
Regression	3	227.141	75.714	5.808	0.000926
Residual	113	1473.167	13.037		
Total	116	1700.309			

Subsequent steps in this procedure produced non-significant F values. By using the eleven Irrational Ideas and age as the predictor variables, only 17.51 percent of the total variance in I-E scores was accounted for.

In conclusion, the major hypothesis of this study was not confirmed. A non-significant correlation was obtained between the measures of belief in external control and irrationality (or possession of Irrational Ideas). The I-I subtests which accounted for most of the variance in I-E scores were the measure of belief in Irrational Idea No. 7, that is, that it is easier to avoid than to face certain life difficulties and self-responsibilities, and the measure of belief in Irrational Idea No. 4, that is, that it is awful and catastrophic when things are not the way one would very much like them to be.

Subsidiary Hypotheses

Each of the subsidiary hypotheses in this study predicted a specific relationship between belief in external control and each of Ellis' eleven Irrational Ideas. The correlations between belief in external control and each of the I-I subtests are shown in Table III. A brief restatement of each Irrational Idea, together with the results of testing its hypothesized relation to belief in external control, follows:

1. That it is a dire necessity to be loved and approved of by all significant persons.

It was hypothesized that this idea would be positively correlated with belief in external control. The correlation obtained (0.17) approaches the 0.05 level but is not significant. Thus, while a positive correlation between these two beliefs is suggested, the hypothesis was not confirmed.

2. That one should be thoroughly competent, adequate, and achieving in all possible respects if one is to consider oneself worthwhile.

It was hypothesized that this belief would be negatively correlated with belief in external control. The results obtained gave limited support to the hypothesis, but, as the correlation of -0.16 is not significant at the 0.05 level, the hypothesis was not confirmed.

3. That some people are bad, wicked, or villainous, and should be blamed and punished for it.

No relationship with belief in external control was hypothesized. The correlation obtained (0.01) confirmed this hypothesis.

4. That it is awful and catastrophic when things are not the way one would very much like them to be.

It was hypothesized that this idea would not be related to belief in external control. The correlation of 0.20, significant at the 0.05 level, shows a positive relationship between this Irrational Idea and belief in external control. Thus, the hypothesis was not confirmed.

5. That human unhappiness is externally caused and that people have little or no ability to control their sorrows and disturbances.

It was hypothesized that belief in this Irrational Idea would be positively correlated with belief in external control. A positive, but non-significant, correlation of 0.13 was obtained. The hypothesis, therefore, was not supported.

6. That if something is or may be dangerous or fearsome one should be terribly concerned about it and should keep dwelling on the possibility of its happening.

A positive correlation was hypothesized between this belief and belief in external control. The correlation obtained (0.17) approaches the 0.05 level, but is not statistically significant. While support for the hypothesized positive relation is suggested, the hypothesis was not confirmed.

7. That it is easier to avoid than to face certain life difficulties and self-responsibilities.

A positive correlation was hypothesized between this idea and belief in external control. Testing of this hypothesis yielded the most significant relationship between belief in external control and any of Ellis' Irrational Ideas. A positive correlation (0.28), beyond the 0.01 level of significance, was obtained. This hypothesis was, therefore, upheld.

8. That one should be dependent on others and that one needs someone stronger than oneself on whom to rely.

It was hypothesized that this belief correlates positively with belief in external control. A non-significant correlation of -0.07 was obtained; the hypothesis was not confirmed.

9. That because something once strongly affected one's life, it should indefinitely have a similar effect.

It was hypothesized that no relationship exists between this idea and belief in external control. A non-significant correlation of -0.11 confirmed this hypothesis.

10. That one should become quite upset over other people's problems and disturbances.

No relationship between this idea and belief in external control was hypothesized. A non-significant correlation of 0.03 confirmed this hypothesis.

11. That there is invariably a right, precise, and perfect solution to human problems and that it is catastrophic if this perfect solution is not found.

It was hypothesized that no relationship exists between this idea and belief in external control. A non-significant correlation of -0.03 upheld this hypothesis.

Conclusions

The major hypothesis of this study predicted a positive correlation between irrationality, as defined by Ellis and measured by the I-I Inventory, and belief in external control, as defined by Rotter and measured by the I-E Scale. A positive, but non-significant, relationship was found; the major hypothesis was, therefore, not confirmed.

Subsidiary hypotheses predicted a specific relationship between each of Ellis' Irrational Ideas and belief in external control. Positive correlations were predicted between belief in external control and each of Irrational Ideas No. 1, No. 5, No. 6, No. 7, and No. 8. Of these, Irrational Idea No. 7 was found to be significantly and positively related to belief in external control. Correlation of each of Irrational Ideas No. 1 and No. 6 with belief in external control approached the 0.05 level of significance, but the respective hypotheses were not confirmed. Hypotheses relating Irrational Ideas No. 5 and No. 8 with belief in external control were clearly not confirmed.

A negative correlation was predicted between belief in external control and Irrational Idea No. 2. Results suggested support for this hypothesis, but the correlation did not reach the significance level to confirm the hypothesis.

No significant relationship was predicted between belief in external control and each of Irrational Ideas No. 3, No. 4, No. 9, No. 10, and No. 11. Correlations confirmed the hypotheses regarding Irrational Ideas No. 3, No. 9, No. 10, and No. 11. However, a positive correlation between belief in external control and Irrational Idea No. 4 was found to be significant at the 0.05 level and the hypothesis was thus not confirmed.

CHAPTER V

SUMMARY AND DISCUSSION

Synopsis of Findings

In view of current interest in the role of beliefs as determinants of behavior, this study purposed to examine two contemporary theories on beliefs. A comparison of Ellis' theory of irrational beliefs with Rotter's theory on belief in external control led to the development of the major hypothesis: it was predicted that irrational thinking would be positively related to belief in external control. More specifically, subsidiary hypotheses predicted that certain Irrational Ideas would significantly contribute to this relationship.

Results from empirical investigation did not provide statistical verification of the major hypothesis. Of the eleven Irrational Ideas, two were shown to be significantly and positively related to belief in external control. Two other Irrational Ideas approached significant levels of positive correlation with belief in external control.

These findings showed that belief in external control, as defined by Rotter, was significantly related to avoidance of difficulties and responsibilities, and to intolerance for undesirable circumstances. A positive relationship may be suggested between externality and the need for love and approval, as well as between externality and fears of harm by external forces.

Of these results, the most significant correlation obtained was that of externality and avoidance of difficulties and self-responsibilities (Irrational Idea No. 7). This relation appeared logically pre-

dictable from consideration of Rotter's and Ellis' theories.

In the comparison of Ellis' Irrational Ideas with Rotter's theory (Chapter II), the writer predicted that no strongly positive relation exists between belief in external control and fears of harm by external forces (Irrational Idea No. 6). The restriction on this prediction was based on the inferred passivity of Rotter's model of the externally controlled. Both the direction and the magnitude (non-significant) of the correlation may support this interpretation.

The results of correlating Irrational Idea No. 1 with externality did not confirm the predicted positive relationship of need for love and approval with belief in external control, although the correlation approached a significant level. Nevertheless, it should be noted that this evidence provides reason to question Rotter's findings of negative correlations between externality and social desirability (need for approval).

A positive correlation which was not predicted, was that between externality and intolerance for undesirable conditions (Irrational Idea No. 4). In Chapter II of this study, the writer considered the possibility that this Irrational Idea might not distinguish externals from internals. While it seemed logical that externals would agree "that it is awful and catastrophic when things are not the way one would very much like them to be", the possibility existed that high internals, with a strong component of self-determinism, would also accept this idea. The findings clearly related this Irrational Idea to belief in external control, and, thus, invalidated the prediction.

Testing of the other seven subsidiary hypotheses revealed no relation between belief in external control and any of the following

Irrational Ideas:

- Irrational Idea No. 3: an assumption that punishment will prevent or cure people's "wrong" or "wicked" behavior
- Irrational Idea No. 9: the exaggeration of the importance of the past in relation to the present and future
- Irrational Idea No. 10: an overconcern with other people's problems
- Irrational Idea No. 11: a quest for certainty, absolute control, and perfect truth
- Irrational Idea No. 2: the definition of intrinsic worth in terms of competence and achievement
- Irrational Idea No. 5: the non-acceptance of responsibility for one's own disturbances and unhappiness
- Irrational Idea No. 8: a dependence on others

The first four of the ideas listed above were each predicted to bear no relation to belief in external control. Reasons for these predictions were suggested in the comparison of Ellis' Irrational Ideas with Rotter's theory in Chapter II of this study.

Specific predictions regarding each of the last three of these ideas were not supported by the findings of this investigation and may merit consideration.

The perfectionistic value on competence and achievement (Irrational Idea No. 2) was predicted to be negatively correlated with belief in external control. It was argued in Chapter II that this Irrational Idea could logically reflect either the self-determinism of the internals or the lack of belief in the intrinsic value of self of the externals. The prediction, based primarily on Rotter's claims of relation of internals to achievement motivation, was not confirmed. Therefore, the findings of this study may be interpreted as support of the writer's preceding argument.

It was, perhaps, more difficult to interpret the statistical rejection of the subsidiary hypothesis relating belief in external control to a belief in external forces as the cause of human unhappiness and in the helplessness of the individual to control this (Irrational Idea No. 5). Equally paradoxical was the absence of empirical validation of the hypothesized relation between externality and the need to be dependent on others stronger than oneself (Irrational Idea No. 8).

Discussion

It is not easy to explain negative results. Negative results can be due to any one, or several, or all of the following: incorrect theory and hypotheses, inappropriate or incorrect methodology, inadequate or poor measurement, faulty analysis. In this case, the concern is with the belief in external control as labelled and defined by Rotter. The statistical findings of this study have caused the writer to re-examine both Rotter's theory and his instrument for measuring belief in external control.

The specificity of Potter's conception of belief in external control may be questioned. Is it simply that - a distinct belief about the individual's lack (or possession) of control over what happens to him? Or, is the belief in external control, as Rotter also intimates, a more complex set of characteristics, such as passive acceptance of luck and fate, feelings of powerlessness in a society controlled by powerful others who are seen as selfishly impersonal? Is it a denial of self and self-ability, a lack of awareness of human relations and needs, and a presumption of the worthlessness of the individual? Is it a resentment of the unfairness of the "system" and an idealistic and wishful belief in the feasibility of a society that is ultimately moral, just, and democratic? Or, is the belief in external control a realistic perception of contemporary society? Is it a succinct and measurable variable which may thus be compared with other psychological constructs? Or, is the belief in external control a generalized philosophy of life which pervades other beliefs, attitudes, perceptions, and concomitant behavior?

In an attempt to investigate these questions, the writer reviewed the content of each of the items in Rotter's I-E Scale. An admittedly subjective evaluation of this content revealed no simple or discrete definition of the beliefs, attitudes, or feelings subsumed by Rotter under the label of belief in external control. In addition, it is the writer's opinion that the "external choice" in Potter's items may not necessarily be the negative counterpart of the beliefs, attitudes, or feelings reflected in the corresponding "internal choice".

The following analysis examines five typical items from the I-E Scale. These items were selected to represent the different aspects of man's social experiences that seem to have significance in Rotter's I-E Scale, namely: world affairs and politics, worth of the Individual, social relations, the role of luck, the education system. An endeavour was made to interpret each I-E item in terms of the writer's perception of Ellis' theory. In addition, each external and internal choice was classified as irrational and/or rational.

I-E Item

External Choice: There will always be wars, no matter how hard people try to prevent them.

Discussion: Preference for this choice may be interpreted to reflect a belief about the aggressive, bellicose nature of man, a belief in fatalism, and feelings of futility and powerlessness. On this basis, it may be considered irrational thinking, according to Ellis. However, this choice may also be indicative of a conditioned acceptance of, and adjustment to, society, reinforced by cognizance of historical and political events. As such, it could be classified as rational, in Ellis' terms.

Internal Choice: One of the major reasons why we have wars is because people don't take enough interest in politics.

Discussion:

Preference for this choice may indicate an acceptance of the fallibility of humans, a belief in the capacity of man to make wise decisions, a belief in the democratic process. These components may denote rational thinking, in Ellis' terms. This choice may, however, represent an idealistic faith in man and the democratic process. It may also, through placing the blame for wars on political leaders, reflect a distrust of those in power - they are selfishly aggressive. It may, then, imply a belief in the "evil" nature of man, as well as feelings of powerlessness of the individual. As such, it could be considered irrational thinking by Ellis.

I-E Item

External Choice: Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

Discussion:

Preference for this choice may reflect feelings of futility and powerlessness, as society is unaware of, and denies the individual. This may be related to feelings of passivity or, alternately, aggression. Implied here, also, is a lack of belief in causal relation between efforts and rewards. There may

exist a component of needing external reinforcement in order to measure one's worth. These feelings and ideas would likely be seen by Ellis as irrational. This choice may, however, indicate acceptance of the fallibility of man and a realistic perception of modern society. On that basis, it could be seen as rational thinking, in Ellis' terms.

Internal Choice: In the long run people get the respect they deserve in this world.

Discussion: Choice of this idea may indicate a belief in the justness of man and society, and a concomitant absence of fear or need to ward off threat. It may be interpreted as an acceptance of self and others. For these reasons, it could be classified as rational by Ellis. This idea could, however, be selected by those who believe in conformity and have a need for approval by others. It may also be seen to involve an element of wishful thinking; and/or self-righteousness, and, conceivably, an unrealistic appraisal of our society - that is, irrational thinking, according to Ellis.

I-E Item

External Choice: No matter how hard you try some people just don't like you.

Discussion: Selection of this choice may be based on a realistic acceptance of self and others, an understanding of human relations and individual differences, and, to a minor degree, recognition of the role of chance. Interpreted in this way, it may be said to be derived from rational thinking. An element of irrational thinking may be present if the subject sees this as a rationalization for antisocial behavior.

Internal Choice: People who can't get others to like them don't understand how to get along with others.

Discussion: Preference for this choice may be related to the subject's desire for approval, accompanied by conformity to others. It may be inferred that choice of this idea reflects a strong component of self-denial. It could also be a rationalization for faulty social relations. Selection of this choice may, thus, be based on irrational thinking. If, however, the preference for this choice is based on recognition of one's own responsibility in achieving satisfactory social relations and an awareness of human needs, it may reflect rational thinking.

I-E Item

External Choice: Most people don't realize the extent to which their lives are controlled by accidental happenings.

Discussion:

Belief in this statement may reflect feelings of powerlessness and isolation in a world seen as unpredictable and, perhaps, threatening. It conveys also a suggestion of the futility of counteraction against the inevitability of chance. The acceptance of this belief and related attitudes and feelings can logically be interpreted as irrational thinking, as defined by Ellis. In addition, the conception of life experiences as "accidental happenings" may be pregnant with irrational implications.

Internal Choice: There is really no such thing as "luck".

Discussion:

Selection of this choice would seem to be obviously related to a strong component of self-determinism and a complete denial of the relevance of unpredictable and uncontrollable factors. This would seem to be an unrealistic evaluation of self and ability which may well presume isolation. Interpretation of Ellis' theory categorizes this as irrational thinking. Hence, both choices in this item may be best explained as irrational.

I-E Item

External Choice: Sometimes I can't understand how teachers arrive at the grades they give.

Discussion:

Preference for this statement may be related to denial of self. It may be a rationalization used as a defense in the face of failure and reflect passivity and withdrawal from commitment to information-seeking behavior. There may also be attitudes about the unfairness of "the system", accompanied by feelings of futility about understanding or changing the situation. According to Ellis, this would be irrational thinking. On the other hand, this statement may well have been selected by the rational student who recognizes that he cannot understand all the factors which influence his grades. Also, he may be aware of the fact that some teachers do give inappropriate grades.

Internal Choice: There is a direct connection between how hard I study and the grades I get.

Discussion:

Subjects selecting this choice may be revealing cognizance of the causal relationship between efforts and rewards. A belief in self may be equally significant. A trust in teachers may reflect a belief in the fairness of adults and society. On this basis, the statement may be considered to be illustrative of rational thinking. It may, nevertheless, be argued that this choice could be selected by

the student who lacks awareness of the other factors which influence his grades: the Idealistic, unrealistic student, that is, the Irrational thinker.

The foregoing analysis has presented five of the items from Rotter's 23-item test. In the writer's opinion, these five items illustrate the complex, and often, paradoxical nature of variables tested in the I-E Scale. Parenthetically, a similar analysis of all items revealed only one item of less complexity, with more clearly defined and measurable factors. Moreover, only this one item (No. 86) may clearly distinguish irrationality from rationality, in Ellis' terms.

From this subjective analysis of content of the I-E Scale there evolves the following grouping of beliefs, attitudes, and feelings, as reflected in the external choices:

1. belief about the nature of man as aggressive, selfish, bellicose, and egocentric
2. belief in the power of fate, chance, and luck to significantly influence one's life
3. absence of belief in the causality of relation between one's behavior or personality and reward
4. feelings and attitudes of futility, worthlessness, powerlessness, isolation, passivity, distrust, and resentment
5. perception of society and the world as unpredictable, ominous, unfair, composed of ignorant masses of people and controlled by corrupt, non-caring, and powerful leaders

6. understanding and acceptance of the Imperfections In man and society, combined with an awareness of human fallibilities and needs

A similar attempt at grouping those factors subsumed under the Internal choices reveals the following:

1. belief In self and ability, perhaps to an exaggerated degree of self-determinism
2. belief about the nature of man as fair and trustworthy, with a capacity to learn from experience and with the potential for wisdom
3. belief In causal relation between reward and effort, behavior, or personality
4. belief In the democratic process, accompanied by a perception of society and the world as Infallibly fair, moral, and non-threatening
5. acceptance and understanding of human fallibility and needs, combined with maturity In social relations
6. feelings and attitudes of powerlessness, distrust, self-righteousness, conformity, and need for approval
7. belief in the "evil" nature of man, especially of those In power, as selfishly aggressive and untrustworthy - characteristics which necessitate control
8. unrealistic belief about the self and man as Infallible, combined with Idealism, wishful thinking, an unrealistic appraisal of contemporary society, and, sometimes, self-denial

9. denial of the role of chance and other unpredictable influences in one's life

If some degree of credibility of the foregoing interpretation is granted, one further observation of the I-E items may be relevant - factors involved in the external choice are not consistently the counterpart of the factors involved in the internal choice in a given item. It will also be noted that both rational and irrational ideas (in Ellis' terms) are included in many choices, whether external or internal.

It is evident that the writer tentatively proposes the possibility of a considerable degree of fallacy in the use of Rotter's labels of "belief in external control" and "belief in internal control". Accordingly, Rotter's declaration of the unidimensionality of the I-E Scale is seriously questioned. Admittedly, these objections are based on subjective interpretation. It will be recalled, however, that this re-examination of Rotter's theory and instrument resulted from the failure to find a significant relation between externality and irrationality - a relation which seemed logically predictable from consideration of Rotter's and Ellis' theories. In addition, the absence of relation between belief in external control and certain irrational ideas impelled the writer to pursue further investigation. To accept that belief in external control is not related to a belief that human unhappiness is externally caused, and that people cannot control their sorrows and disturbances (Irrational Idea No. 5), and that belief in external control is not related to the idea that one needs to be dependent on stronger others (Irrational Idea No. 8) seemed incongruent with the theories.

To provide additional statistical information on the relation between externality and irrationality, I-I item scores were correlated with the total I-E score of each subject (Appendix B). Only seven of the 65 correlations so obtained were of sufficient magnitude to be significant beyond the 0.05 level; the largest correlation coefficient was -0.348. Of these seven significant correlations, only three correlated in the positive direction - that is, irrationality with externality. From this evidence, and from the findings reported in Chapter IV, it was concluded that no significant relation exists between irrationality (as measured on the I-I Inventory) and externality (as measured on the I-E Scale).

Alternative considerations at this point were that the validity of the I-I Inventory could be challenged, or that the validity and unidimensionality of the I-E Scale could be questioned.

Defense of the validity of the I-I Inventory is provided by the empirical findings of independent investigators as cited in Chapter II of this study.

The content validity of the I-E Scale items has been analyzed and questioned by the writer earlier in this chapter. To investigate the unidimensionality of the I-E Scale, a factor analysis of the items was conducted. This factor analysis (Appendix C) revealed ten factors with eigen values greater than one. The unrotated factor matrix shows that these ten factors can account for only approximately 65 percent of the total variance in the I-E scores. The percentage of total variance accounted for by the first factor is small and is, in fact, not much greater than that contributed by the other nine factors. These results provide substantial support for challenging the unidimensionality of

the content in the I-E Scale.

Summary of Discussion

Failure to find statistical corroboration of the predicted relation between irrational beliefs and belief in external control persuaded the writer to re-examine both the theory and the instruments used in this study. A critical review of the items in the I-E Scale augmented the writer's doubts about the suitability of Rotter's use of the labels "belief in external control" and "belief in internal control". It is the writer's opinion that a complex and disparate set of beliefs, attitudes, and feelings is included under each of these labels. Statistical analysis provided support for this opinion.

From this investigation the writer suggests, with hindsight, that "belief in external control" is not a succinct and measurable variable which can be compared with, or related to, more discrete beliefs or psychological constructs. Moreover, it is suggested that the inconsistencies within the set of factors called "belief in external control" preclude its designation as a generalized philosophy of life.

Implications for Further Research

From the results of this study and the ensuing examination of Rotter's I-E Scale, several implications for further research may be indicated. Of paramount significance is the need for more rigorous analysis of the I-E Scale. It may also be informative to compare the I-E Scale with measures of self-concept, personality, adjustment, or with other measures of beliefs, such as the Rokeach Dogmatism Scale.

Additional research on the development of norms for the Irrational Ideas Inventory is also suggested. By comparison with Allen's norms, the sample of this study showed a significant difference in response to the I-I Inventory. This difference may merit further investigation of its relation to the subjects' status as summer school students in grade eleven matriculation courses.

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APPENDICES

APPENDIX A
STUDENT OPINION SURVEY

STUDENT OPINION SURVEY

This is a study of events and experience in everyday life. You are asked to cooperate seriously and carefully in answering the questions in this booklet. This is not a test of intelligence or ability. There are no right or wrong answers - the best answer to each statement is your own first impression.

Many educators, parents, and other adults have opinions on the attitudes of high school students. We are interested in getting closer to the true attitudes of students by having them tell us directly about themselves. Your answers will be treated with the strictest confidence. Please do not put your name on either the test booklet or the answer sheet.

Directions: Student Number

In the top right corner of your answer sheet:

Row 1: Print in the box the first digit of your age, and black in the appropriate space.

Row 2: Print in the box the second digit of your age, and black in the appropriate space.

Row 3: In the box print F or M for your sex, as Female or Male. Black in 0 for Female; black in 1 for Male.

Row 4: If you are taking this course for the first time, print 1 in the box, and black in the appropriate space.
If you are taking this course for the second time, print 2 in the box, and black in the appropriate space, and so on.

Row 5: Print in the box, and black in the appropriate space,
the first digit of the grade you have completed.

Row 6: Print in the box, and black in the appropriate space,
the second digit of the grade you have completed.

Directions For Marking Answers

Part A contains Questions 1 to 65 inclusive. For each question decide whether your answer is "Yes" or "No". If your answer is a definite "Yes", black in the space under A on your answer sheet. If your answer is a definite "No", black in the space under E on your answer sheet. If you are uncertain as to how you feel about the statement, black in the space under C. If the true answer is close to "Yes", use the space under B; If it is close to "No", use the space under D.

A	B	C	D	E
Yes	Mostly Yes	?	Mostly No	No

Think carefully, but do not spend too much time on any one question. Let your own personal experience or opinion guide you to choose the answer you feel about each statement.

There is no time limit.

Please mark every item.

Part A (1-1 Inventory)

A	B	C	D	E
Yes	Mostly Yes	?	Mostly No	No

1. I usually object when a person steps in front of me in a line of people.
2. I have sometimes had a nickname which I didn't like very well.

3. I prefer to accept suggestions rather than work them out for myself.
4. Men are created equal in mental capacity.
5. To spare the rod is to spoil the child.
6. I worry about little things.
7. There are people who try to do me harm or hurt me.
8. I sometimes worry about my health.
9. I like to bear responsibilities alone.
10. It is a big aid to health to say each morning, "Day by day in every way I am getting better and better".
11. I prefer to have someone with me when I receive bad news.
12. Sympathy is the most divine passion of the human heart.
13. The good person is usually right.
14. Sometimes I feel that no one loves me.
15. I find it difficult to take criticism without feeling hurt.
16. We are justified in refusing to forgive our enemies.
17. I worry over possible misfortunes.
18. I prefer to be alone.
19. I get disturbed when neighbours are very harsh with their little children.
20. I find it easy to set standards of "right" and "wrong".
21. Jeers humiliate me even when I know that I am right.
22. Punishment is a sure cure for crime.
23. My feelings are easily hurt.
24. Sometimes I am troubled by thoughts of death.
25. My folks are not reasonable to me when they demand obedience.
26. I get annoyed when people are impolite to me.

27. I get terribly upset and miserable when things are not the way I would like them to be.
28. I worry about eternity.
29. Children outgrow their bad habits.
30. I get upset when I hear of people (not relatives or close friends) who are very ill.
31. My folks do not take time to become acquainted with my problems.
32. The members of my family seem to criticize me a lot.
33. I get very angry when I miss a bus which passes only a few feet away from me.
34. I can walk past a grave yard alone at night without feeling uneasy.
35. I usually like to be somewhere else than at home.
36. Other people's problems frequently cause me great concern.
37. I wish that more affection were shown by more members of my family.
38. I worry about tests.
39. When things are not the way I would like them to be, and it is not in my power to change them, I calmly accept things the way they are.
40. I feel that life has a great deal more happiness than trouble.
41. I can face a difficult task without worry.
42. I prefer to be independent of others in making decisions.
43. A juvenile delinquent will almost surely be a criminal when he becomes an adult.
44. He that loses his conscience has nothing left that is worth keeping.
45. My folks appear to doubt whether I will be successful.
46. I tend to worry over possible troubles.
47. Many of my classmates are so unkind or unfriendly that I avoid them.
48. If a child is brought up in a home where there is much quarrelling and unhappiness he will probably be unhappy in his own marriage.

49. When a friend ignores me I become extremely upset.
50. If a person tries hard enough, he can be first in anything.
51. The police may sometimes be right in giving a man the "third degree" to make him talk.
52. It hurts me when my friends are unkind.
53. I worry about the possibility of an atomic attack by some foreign power.
54. I often spend more time in trying to think of ways of getting out of something than it would take me to do it.
55. I feel my parents have dominated me too much.
56. I know there is a God.
57. I find it very upsetting when people who are important to me are indifferent to me.
58. When a person is no longer interested in doing his best he is done for.
59. The best way to teach a child right from wrong is to spank him when he is wrong.
60. It is impossible at any given time to change one's emotions.
61. It is sinful to doubt the Bible.
62. It makes me uncomfortable to be different.
63. I am naturally a lazy person.
64. Persons who are punished for their "sins" usually change for the better.
65. Most people can be truly outstanding in at least one area of their work.

Part B (I-E Scale)

Directions For Marking Answers

Part B contains Questions 66 to 94 inclusive. Each question consists of two parts, "A" and "B". Choose from each pair the statement

which you strongly believe to be correct as far as you are concerned. Mark the answer sheet by blacking in the line under A or B, corresponding to your choice.

Be sure to choose the one you actually believe to be more true rather than the one you think you should choose. There are no right or wrong answers.

- 66.* A. Children get into trouble because their parents punish them too much.
B. The trouble with most children nowadays is that their parents are too easy with them.
67. A. Many of the unhappy things in people's lives are partly due to bad luck.
B. People's misfortunes result from the mistakes they make.
68. A. One of the major reasons why we have wars is because people don't take enough interest in politics.
B. There will always be wars, no matter how hard people try to prevent them.
69. A. In the long run people get the respect they deserve in this world.
B. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
70. A. The idea that teachers are unfair to students is nonsense.
B. Most students don't realize the extent to which their grades are influenced by accidental happenings.
71. A. Without the right breaks one cannot be an effective leader.
B. Capable people who fail to become leaders have not taken advantage of their opportunities.
72. A. No matter how hard you try some people just don't like you.
B. People who can't get others to like them don't understand how to get along with others.
- 73.* A. Heredity plays the major role in determining one's personality.
B. It is one's experiences in life which determine what they're like.

74. A. I have often found that what is going to happen will happen.
B. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
75. A. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
B. Many times exam questions tend to be so unrelated to course work that studying is really useless.
76. A. Becoming a success is a matter of hard work, luck has little or nothing to do with it.
B. Getting a good job depends mainly on being in the right place at the right time.
77. A. The average citizen can have an influence in government decisions.
B. This world is run by the few people in power, and there is not much the little guy can do about it.
78. A. When I make plans, I am almost certain that I can make them work.
B. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.
- 79.* A. There are certain people who are just no good.
B. There is some good in everybody.
80. A. In my case getting what I want has little or nothing to do with luck.
B. Many times we might just as well decide what to do by flipping a coin.
81. A. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
B. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.
82. A. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.
B. By taking an active part in political and social affairs the people can control world events.
83. A. Most people don't realize the extent to which their lives are controlled by accidental happenings.
B. There is really no such thing as "luck".
- 84.* A. One should always be willing to admit one's mistakes.
B. It is usually best to cover up one's mistakes.

85. A. It is hard to know whether or not a person really likes you.
B. How many friends you have depends upon how nice a person you are.
86. A. In the long run the bad things that happen to us are balanced by the good ones.
B. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.
87. A. With enough effort we can wipe out political corruption.
B. It is difficult for people to have much control over the things politicians do in office.
88. A. Sometimes I can't understand how teachers arrive at the grades they give.
B. There is a direct connection between how hard I study and the grades I get.
- 89.* A. A good leader expects people to decide for themselves what they should do.
B. A good leader makes it clear to everybody what their jobs are.
90. A. Many times I feel that I have little influence over the things that happen to me.
B. It is impossible for me to believe that chance or luck plays an important role in my life.
91. A. People are lonely because they don't try to be friendly.
B. There's not much use in trying too hard to please people, if they like you, they like you.
- 92.* A. There is too much emphasis on athletics in high school.
B. Team sports are an excellent way to build character.
93. A. What happens to me is my own doing.
B. Sometimes I feel that I don't have enough control over the direction my life is taking.
94. A. Most of the time I can't understand why politicians behave the way they do.
B. In the long run the people are responsible for bad government on a national as well as on a local level.

APPENDIX B

ITEM SCORES ON THE I-I INVENTORY

CORRELATION COEFFICIENTS OF I-I ITEMS WITH TOTAL I-E SCORE

ITEM SCORES ON THE I-I INVENTORY

MEANS									
3.803	2.863	2.829	3.256	2.761	3.299	2.214	2.983	2.239	3.761
2.316	2.718	2.239	2.692	2.761	2.256	2.821	3.564	3.590	3.137
2.872	2.410	3.103	2.658	3.496	3.675	2.667	2.128	2.923	2.453
2.932	2.709	3.077	3.231	3.479	3.188	2.940	3.778	2.487	2.248
3.094	2.256	2.171	3.376	2.667	3.085	1.863	2.812	3.171	3.376
3.308	3.940	2.145	2.650	3.667	3.547	3.632	3.248	2.325	2.393
1.906	2.427	2.598	2.684	4.444					

STANDARD DEVIATIONS									
1.207	1.806	1.309	1.695	1.494	1.440	1.319	1.496	1.272	1.357
1.477	1.535	1.292	1.593	1.436	1.391	1.494	1.270	1.439	1.479
1.453	1.433	1.532	1.629	1.477	1.204	1.274	1.362	1.347	1.324
1.647	1.591	1.439	1.645	1.331	1.420	1.554	1.433	1.356	1.364
1.414	1.302	1.172	1.573	1.622	1.572	1.287	1.402	1.446	1.425
1.527	1.235	1.329	1.458	1.596	1.482	1.356	1.383	1.407	1.502
1.301	1.521	1.288	1.130	0.862					

CORRELATION COEFFICIENTS OF I-I ITEMS WITH TOTAL I-E SCORE

I-I Item	r	I-I Item	r	I-I Item	r	I-I Item	r	I-I Item	r	I-I Item	r
1	0.047	18	0.148	34	-0.001	50	-0.218				
2	-0.129	19	0.004	35	0.154	51	-0.218				
3	0.120	20	-0.106	36	-0.092	52	-0.009				
4	0.051	21	0.192	37	0.102	53	0.002				
5	0.019	22	0.026	38	-0.168	54	0.199				
6	0.114	23	0.103	39	0.150	55	-0.260				
7	0.227	24	0.129	40	0.282	56	0.125				
8	-0.034	25	-0.067	41	0.049	57	0.023				
9	0.007	26	0.175	42	0.070	58	-0.006				
10	0.104	27	0.183	43	-0.157	59	-0.061				
11	0.039	28	0.196	44	-0.011	60	-0.006				
12	0.043	29	-0.127	45	0.170	61	0.061				
13	-0.187	30	-0.024	46	0.122	62	-0.024				
14	0.121	31	0.135	47	0.056	63	0.097				
15	0.156	32	0.143	48	-0.185	64	-0.053				
16	0.257	33	0.130	49	0.089	65	-0.348				
17	0.179										

APPENDIX C

EIGEN VALUES FOR FACTOR ANALYSIS OF I-E SCALE

UNROTATED FACTOR MATRIX OF I-E SCALE

EIGEN VALUES FOR FACTOR ANALYSIS OF I-E SCALE

3.168	2.096	1.637	1.478	1.384	1.291	1.131	1.112	1.064	1.038
0.966	0.900	0.813	0.805	0.723	0.688	0.617	0.589	0.541	0.501
0.465	0.377	0.349	0.266						

UNROTATED FACTOR MATRIX OF I-E SCALE

Item	Communalities									
	1	2	3	4	5	6	7	8	9	10
67	0.727	0.020	-0.413	0.013	-0.022	-0.377	-0.151	-0.091	0.526	-0.043
68	0.626	-0.622	0.364	0.071	-0.050	0.087	0.186	0.114	-0.105	0.039
69	0.749	0.048	-0.036	-0.366	0.569	-0.313	-0.308	-0.308	-0.215	-0.215
70	0.772	0.061	0.047	0.025	-0.664	-0.344	-0.086	0.207	-0.328	-0.141
71	0.613	0.070	-0.296	0.415	0.268	-0.049	-0.064	0.267	-0.177	0.302
72	0.422	0.046	0.148	-0.003	0.121	0.434	0.178	-0.090	-0.190	0.244
74	0.612	0.094	0.101	-0.188	0.013	0.047	0.216	0.125	0.304	-0.323
75	0.611	0.250	0.271	0.366	0.087	-0.362	-0.080	-0.171	-0.076	-0.047
76	0.650	0.318	-0.350	-0.187	-0.105	0.122	0.340	-0.275	-0.057	-0.162
77	0.636	-0.333	-0.320	0.051	0.115	-0.301	-0.032	0.030	-0.055	0.270
78	0.740	-0.249	0.101	0.231	-0.147	0.308	-0.569	-0.113	0.171	-0.009
80	0.594	0.162	-0.115	0.238	-0.346	0.130	-0.021	-0.340	0.005	-0.145
81	0.633	0.336	-0.450	0.083	-0.074	0.258	0.091	0.191	-0.032	0.114
82	0.560	-0.571	-0.156	0.329	0.002	-0.104	0.002	0.017	-0.068	0.046
83	0.627	-0.182	-0.036	-0.419	-0.185	-0.146	0.089	0.179	-0.169	-0.093
85	0.734	0.421	0.353	-0.377	-0.090	-0.147	-0.164	0.230	0.162	0.330
86	0.687	0.090	0.421	0.409	0.224	-0.288	0.260	-0.103	0.019	-0.301
87	0.605	-0.306	-0.042	-0.151	0.410	0.121	0.223	-0.117	0.179	-0.021
88	0.625	0.408	0.052	0.086	0.203	0.136	-0.114	0.466	0.084	-0.015
90	0.527	-0.264	0.274	-0.099	-0.024	0.000	0.159	0.291	-0.049	-0.035
91	0.634	0.282	-0.001	-0.149	0.086	-0.177	0.072	-0.382	-0.414	0.285
93	0.741	0.065	0.493	-0.119	-0.082	0.016	-0.126	-0.316	0.213	0.361
94	0.769	-0.136	-0.025	-0.210	0.119	0.307	-0.472	-0.086	-0.301	-0.351
	14.895	2.096	1.637	1.478	1.384	1.291	1.131	1.112	1.064	1.038

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